UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/857,229	08/20/2001	Blue John Ramsey	78104.025	9574

7590 04/22/2003

DeWitt Ross & Stevens
Firstar Financial Centre
Suite 401
8000 Excelsior Drive
Madison, WI 53717-1914

EXAMINER
WONG, EDNA

ART UNIT	PAPER NUMBER
1753	9

DATE MAILED: 04/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/857,229	Applicant(s) RAMSEY ET AL.	
	Examiner Edna Wong	Art Unit 1753	

-- Th MAILING DATE of this communication appears on th cover she t with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,19-30,34 and 35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,19-30,34 and 35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

This is in response to the Amendment dated April 8, 2003. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Specification

The disclosure has been objected to because the application did not contain an abstract of the disclosure.

The objection of the disclosure has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claim **28** has been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claim 28 under 35 U.S.C. 112, second paragraph, has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 102

Products

I. Claims **31-33** have been rejected under 35 U.S.C. 102(b) as being anticipated by

Chen et al. (US Patent No. 5,989,653).

The rejection of claims 31-33 rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. has been withdrawn in view of Applicants' amendment. Claims 31-33 have been cancelled.

II. Claims **31-33** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Kenney** (US Patent No. 3,949,121).

The rejection of claims 31-33 under 35 U.S.C. 102(b) as being anticipated by Kenney has been withdrawn in view of Applicants' amendment. Claims 31-33 have been cancelled.

Composition

III. Claims **34 and 35** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Seeger, Jr. et al.** (US Patent No. 4,759,970).

The rejection of claims 34 and 35 rejected under 35 U.S.C. 102(b) as being anticipated by Seeger, Jr. et al. has been withdrawn in view of Applicants' amendment.

Process

IV. Claims **1-2, 20, 22-23 and 28** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Chen et al.** (US Patent No. 5, 989,653).

The rejection of claims 1-2, 20, 22-23 and 28 under 35 U.S.C. 102(b) as

being anticipated by Chen et al. has been withdrawn in view of Applicants' remarks.

V. Claims **1-2, 20, 22-23 and 28** have been rejected under 35 U.S.C. 102(b) as being anticipated by **Kenney** (US Patent No. 3,949,121).

The rejection of claims 1-2, 20, 22-23 and 28 rejected under 35 U.S.C. 102(b) as being anticipated by Kenney has been withdrawn in view of Applicants' remarks.

Claim Rejections - 35 USC § 103

I. Claims **21 and 24-27** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (US Patent No. 5,989,653) as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of **Seeger, Jr. et al.** (US Patent No. 4,579,970).

The rejection of claims 21 and 24-27 under 35 U.S.C. 103(a) as being unpatentable over Chen et al. as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of Seeger, Jr. et al. has been withdrawn in view of Applicants' remarks.

II. Claims **19, 29 and 30** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Chen et al.** (US Patent No. 5, 989,653) as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of **Brandt et al.** (US Patent No. 5,922,397).

The rejection of claims 19, 29 and 30 under 35 U.S.C. 103(a) as being unpatentable over Chen et al. as applied to claims 1-2, 20, 22-23 and 28 above, and

further in view of Brandt et al. has been withdrawn in view of Applicants' remarks.

III. Claims **21 and 24-27** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Kenney** (US Patent No. 3,949,121) as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of **Seeger, Jr. et al.** (US Patent No. 4,579,970).

The rejection of claims 21 and 24-27 under 35 U.S.C. 103(a) as being unpatentable over Kenney as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of Seeger, Jr. et al. has been withdrawn in view of Applicants' remarks.

IV. Claims **19, 29 and 30** have been rejected under 35 U.S.C. 103(a) as being unpatentable over **Kenney** (US Patent No. 3,949,121) as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of **Brandt et al.** (US Patent No. 5,922,397).

The rejection of claims 19, 29 and 30 under 35 U.S.C. 103(a) as being unpatentable over Kenney as applied to claims 1-2, 20, 22-23 and 28 above, and further in view of Brandt et al. has been withdrawn in view of Applicants' remarks.

Response to Amendment

Claim Rejections - 35 USC § 102

Product

Claim **34 and 35** are rejected under 35 U.S.C. 102(b) as being anticipated by **Eichelberger et al.** (US Patent No. 4,416,914).

Eichelberger teaches a lithographic ink for use in a lithographic printing process onto a polymer substrate, the ink comprising:

(a) a particulate material (= finely divided metallic powder) [col. 5, lines 23-37] suspended in a mixture of a resin (= polymers) [col. 5, line 38 to col. 6, line 11];

(b) an antioxidant (= stabilizers) [col. 6, lines 12-21]; and

(c) an organic solvent (col. 6, lines 29-63),

wherein the resin comprises a polyamide (col. 5, lines 62-63).

The particulate material is a metal (= finely divided metallic powder) [col. 5, lines 23-37].

Claim Rejections - 35 USC § 103

I. Claims **1-2 and 20-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **WO 97/48257** in combination with **Seeger et al.** (US Patent No. 4,759,970) and **Haney et al.** (US Patent No. 4,411,980).

The WO reference teaches a process for forming a conductive layer on a substrate comprising the step of:

depositing ink on the substrate by means of lithographically printing to form a seeding layer (page 3, lines 22-25).

The substrate is formed from a polymer (= semi-synthetic, synthetic or plastics) into a flexible sheet (= paper) [page 3, line 34 to page 4, line 1; and page 7, line 8 to

page 8, line 5].

The ink comprises a particulate material suspended in a mixture of a resin and an organic solvent (page 5, lines 9-15; and page 6, lines 24-32).

The particulate material is a metal or carbon (page 4, line 36 to page 5, line 7).

The thickness of the seeding layer is from 3 to 5 microns (= about 5 microns) [page 4, lines 8-9].

The WO reference does not teach depositing a first electrically conducting layer on the seeding layer by electroless deposition.

However, Seeger teaches a particle-loaded ink bound to a substrate by a thermosetting resin and a conductive metal plating overlies the ink and provides high electrical conductivity to circuit paths (col. 2, lines 10-13; and col. 8, lines 51-68).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the process of the WO reference by depositing a first electrically conducting layer on the seeding layer by electroless deposition because this would have provided high electrical conductivity to circuit paths as taught by Seeger (col. 2, lines 10-13; and col. 8, lines 51-68).

As to electroplating a second electrically conducting layer onto the first electrically conducting layer, Haney teaches that it is conventional to form the circuit by one of several additive techniques including electroless plating and electroplating (col. 1, lines 14-26; and col. 7, line 48 to col. 8, line 31). Thus, it is well within the skill of the artisan to have electroplated a second electrically conducting layer onto the first electrically conducting layer to have additionally built up the conducting circuit paths.

As to the substrate is coated with a copolymer adhesive, this is well within the skill of the artisan to bind the particle-loaded ink to the substrate as taught by Seeger (col. 2, lines 10-13 and 19-22). A conventional adhesive includes a mixture of polyvinyl acetal and an epoxy resin (see Seeger, col. 5, lines 7-55).

As to wherein the resin is a polymer having amide groups, polyamides are known binders in particle-filled printing inks as taught by Seeger, Jr. (col. 5, line 56 to col. 6, lines 5). It has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

Furthermore, the resin is a result-effective variable and one skilled in the art has the skill to determine the resin that would carry out the desired reaction, i.e., the polymer carrier should be identical to, or similar to, or compatible with the substrate upon solidification so that good adhesion is created between the substrate and the solid

matrix of the polymer carrier, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

As to wherein the thickness of the first electrically conducting layer is less than or equal to 4 microns; and wherein the thickness of the first electrically conducting layer is about 0.25 microns, this is well within the skill of the artisan dependent upon the intended use of the device, particularly to the environment to which the device will encounter, which would be most suited for the application of the device, absent evidence to the contrary.

Furthermore, the thickness of the first electrically conducting layer is a result-effective variable and one skilled in the art has the skill to calculate the thickness that would determine the success of the desired reaction to occur, e.g., thick enough to carry sufficient current, absent evidence to the contrary. MPEP § 2141.03 and § 2144.05(b).

Seeger teaches plating thicknesses of from 0.003 to 0.0008 inches (= 76 μ to 20 μ) [col. 8, lines 51-62].

As to wherein the first electrically conducting layer is formed form at least one of copper, palladium, silver, gold, platinum, or nickel, Seeger teaches electrolessly plating any metal (col. 8, lines 51-52), for example, nickel, copper or gold (col. 10, lines 50-56).

II. Claims **19, 29 and 30** are rejected under 35 U.S.C. 103(a) as being unpatentable

over **WO 97/48257** in combination with **Seeger et al.** (US Patent No. 4,759,970) and **Haney et al.** (US Patent No. 4,411,980) as applied to claims 1-2 and 20-28 above, and further in view of **Brandt et al.** (US Patent No. 5,922,397).

The WO combination is as applied above and incorporated herein.

The WO reference does not teach soldering an electrical component on the substrate.

However, Brandt teaches that plated polymer thick film inks have been used to create conductive and solderable electronic circuit traces as well as plated through-holes for component attachment in printed circuit boards (col. 1, lines 44-61).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the process of the WO reference with soldering an electrical component on the substrate because plated polymer thick film inks have been used to create conductive and solderable electronic circuit traces as well as plated through-holes for component attachment in printed circuit boards as taught by Brandt (col. 1, lines 44-61).

As to attaching an electrical component to the first or second layer by means of a

conductive polymer adhesive; and attaching an electrical component to the first conducting layer by means of a conductive polymer adhesive, it appears that conductive polymer adhesives are known in the printed circuit art. It does not appear that Applicants have invented conductive polymer adhesives, and thus, substitution of a solder with a conductive polymer adhesive would have been functionally equivalent and would have been doing the same endeavor of bonding an electrical component to a conducting layer of a printed circuit.

Furthermore, it has been held that the selection of a known material based on its suitability for its intended use supports a prima facie obviousness determination. See MPEP § 2144.06 and § 2144.07.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-

1495.

Edna Wong
Primary Examiner
Art Unit 1753

EW
April 21, 2003